

Reference solution: NewCold Burley

Active fire prevention with OxyReduct® in fully automated deep-freeze high-bay warehouses



WAGNER® 

The customer



◀ In Burley, Idaho, NewCold has built a US\$90 million deep-freeze high-bay warehouse – fully automated, with space for 90,000 pallets.

The warehouse, which is built in the cladded rack design, has a storage volume of almost

▼ 600,000 cubic metres.



FRENCH FRIES AROUND THE CLOCK: FIRE PREVENTION IN THE FULLY AUTOMATED DEEP-FREEZE HIGH-BAY WAREHOUSE AT NEWCOLD IN BURLEY, USA

With eight locations on three continents and 730,000 pallet spaces, Dutch company NewCold is one of the fastest growing deep-freeze logistics companies in the world. The business' international expansion is driven primarily by the needs of its customers. After the first deep-freeze high-bay warehouse opened in Tacoma, Washington, in May 2018, the next high-performance warehouse was inaugurated in Burley, Idaho, just 17 months later. Coming in at 90 million US dollars, the fully-automated warehouse stores up to 90,000 pallets of frozen foods, including McCain potato products.

NewCold is committed to a high level of service, with customer relations based on partnership and continuous improvement of the technologies used. These values are also the foundations of the WAGNER Group.

NewCold and WAGNER have a long history of successful cooperation based on mutual trust. In recent years, WAGNER has supported NewCold in Australia, the United States – most recently in Burley – and various countries in Europe, equipping their deep-freeze high-bay warehouses with fire prevention solutions.



The goal: *Protecting products and logistical processes from fire risks*

For NewCold, the focus is the protection of people and the environment, with the following protection goals as top priorities:

- Functionality of the automated storage system and logistical processes must remain uninterrupted to keep the supply chain unbroken.
- Stored goods must be protected from damage and smoke contamination.
- Fire-related consequences must be mitigated to preserve customer relations and brand reputations.



“The cold warehouse helps support the production and supply chain activities of leading food processors in the region, including McCain Foods. It is our responsibility to ensure availability, even in the event of a fire.”

Jonas Swarttouw, VP Customer & Business Development U.S. at NewCold

▲ The warehouse is fully automated. With the help of seven storage and retrieval machines, up to 180 pallets with goods can be moved per hour – and a total of 3,500 pallets daily.

THE LOGISTICS CHAIN MUST NOT BE INTERRUPTED

Nearly half of all fires in cold and deep-freeze warehouses are caused by defective electrical equipment, putting fully automated warehouses at an especially high risk. When analyzing and evaluating fire hazards in deep-freeze warehouses, several use-specific fire risks must be considered. These include:

- Use of combustible building and insulation materials
- Technical operating equipment with increased fire hazards: refrigerators, defroster and heating equipment, heat exchangers, packaging plants, automated storage and retrieval machines, etc. (risk of short circuits due to defective insulation on current-carrying lines and switch cabinets)

- The extreme dry atmosphere created by low temperatures
- Warehouse height and the narrow rack structure design create a chimney effect conducive to the rapid spread of fire
- High fire loads as a result of tight packing of pallets and goods

NewCold’s deep-freeze high-bay warehouse in Burley has an area of 14,400 square meters and is almost 42 meters high – the equivalent height of three standard warehouses stacked on top of each other. In the fully automated warehouse, seven storage and retrieval systems are capable of handling up to 180 pallets an hour. Each day, 3,500 pallets can be moved at peak times thanks to twelve loading docks, and another two directly connected to the rail network.



This degree of automation and the associated risk of technical defects, along with the highly flammable nature of cardboard and packaging films, make a comprehensive fire prevention solution indispensable, as the availability of goods must remain uninterrupted by fire under any circumstances.

The solution



◀ OxyReduct-V-Line® systems generate the nitrogen required for oxygen reduction from the ambient air and introduce it into the protected area.

TAILORED, ULTRA ENERGY-EFFICIENT FIRE PREVENTION

In configuring and operating its deep-freeze warehouse, NewCold has committed to conserving resources, leaving nothing to chance. The envelope of the “big white cube”, as the locals call the warehouse in Burley, is white to take advantage of excellent reflection properties. By combining this special design, improved insulation and optimized cooling technology, the fully automated warehouse now only requires around 50% of the energy of a conventional deep-freeze warehouse. The fire prevention solution also had to meet these high standards.

OxyReduct V-Line® systems are located just a few meters away from the protected area in a separate technical room on an intermediate level of the warehouse. Equipped with their own compressors, the oxygen reduction

systems generate nitrogen using the ambient air, introducing it into the warehouse. The controlled nitrogen supply lowers the oxygen content in the protected area, thus creating a fire-retardant atmosphere. *OXY-SENS*® sensors continuously measure the oxygen concentration in the protected area, working with the OxyControl system to maintain a constant oxygen operation concentration. This was calculated as part of fire tests performed during the deep-freeze warehouse design phase, taking the individual ignition thresholds of the materials found in the warehouse into consideration. As a result, NewCold prevents fires in its deep-freeze warehouse while ensuring the usual deliveries to its customers 24/7. Products are stored and retrieved through five airlocks in the automated high-bay warehouse, minimizing the outflow losses of the oxygen-reduced atmosphere and the cold air from the storage area.

Customer benefits at a glance

- **No fire-related damages** and failures of the warehouse operation
- **Reliable protection** of investments, goods and processes, even at temperatures down to -28°C , as are standard at NewCold in Burley
- **Ensuring 24/7 availability of goods**
- **Low operating costs** through OxyReduct V-Line® technology
- **No water damage** due to sprinkler systems

INSTALLATION EXAMPLE

OxyControl

ensures a fully automatic operation of the plant



N₂ intake pipe

directs nitrogen into the protected area



LEARN MORE

How fire protection works in deep-freeze warehouses



OXY-SENS®

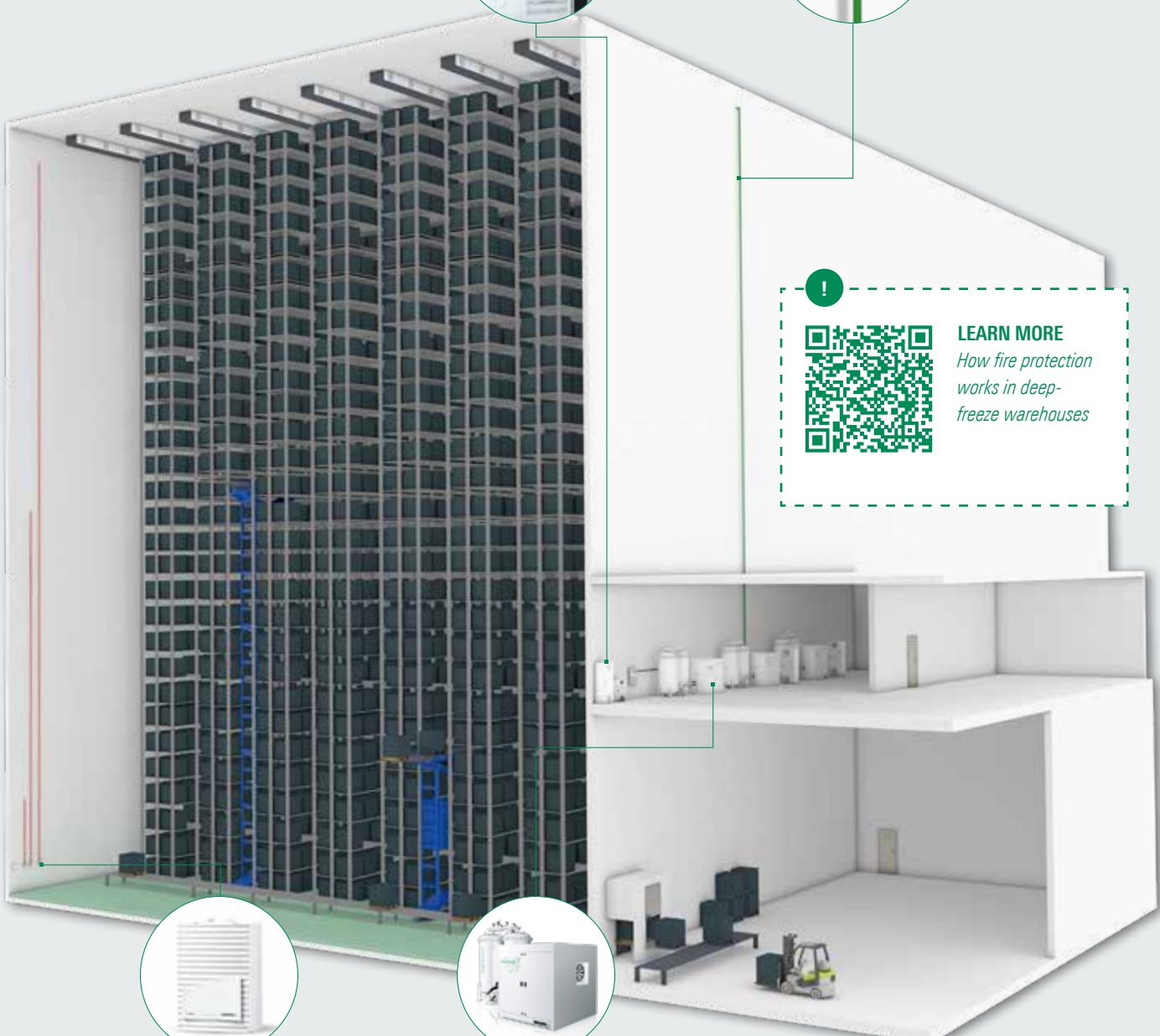
O₂ sensors

measure the oxygen concentration



OxyReduct® system

obtains the nitrogen for oxygen reduction from the air in the room



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